BY ORDER OF THE
COMMANDER HQ 62D AIRLIFT WING
(AMC)

62 AW INSTRUCTION 21-13

31 MAY 2000

Maintenance

CALIBRATION AND REPAIR OF TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT (TMDE)

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This instruction establishes procedures for requesting work from the McChord AFB Precision Measurement Equipment Laboratory (PMEL), for obtaining exceptions to scheduled calibrations, and outlines organizational responsibilities in the use, care, and handling of TMDE. This instruction applies to all organizations receiving support from the PMEL.

1. Responsibilities. Unit commanders, staff agencies, supervisors, and all PMEL coordinators receiving support from the PMEL are responsible for compliance with this instruction.

2. References. The following publications pertain to the use, repair, and calibration of TMDE. Work center supervisors and PMEL coordinators should be familiar with them.

2.1. AFR 21-113: Air Force Metrology and Calibration (AFMETCAL) Program.

2.2. AMCI 21-101: Maintenance Management Policy.

2.3. ANCI/NCSL Z540-1-1994: General Requirements for Calibration Laboratories and Measuring and Test Equipment.

2.4. T.O. 00-20-2-10: Off Equipment, Maintenance Documentation for Shop Work, Conventional Munitions, and PME.

2.5. T.O. 00-20-14: Air Force Calibration and Metrology Program.

2.6. AMCI 00-20-14: Air Force Calibration and Metrology Program.

2.7. T.O. 00-25-234: General Shop Practice Requirement for Repair, Maintenance, and Testing of Electronic Equipment.

2.8. T.O. 00-35D-54: USAF Material Deficiency Reporting and Investigation System.

2.9. T.O. 00-110N-3: Requisition, Handling, Storage, and Identification of Radioactive Materials.

2.10. T.O. 15X-1-102: Cleaning of Oxygen Gauges and Related Test Equipment.

2.11. T.O. 33-1-27: Logistics Support of Precision Measurement Equipment in FSC.

2.12. T.O. 33-1-32: General Instructions for Input Power Wiring of Electrical/Electronic Support Equipment.

2.13. T.O. 33-1-35: Inspect Federal Stock Class Equipment and Install Warning Decal.

2.14. T.O. 33K-1-100-1, 33K1-100-2, and 33K-1-100-2MT-0: TMDE Reference Guide and WUC Manual.

2.15. T.O. 37C11-1-1: Cleaning of Pressure Gauges Used on Liquid Oxygen Systems.

2.16. T.O. 1F-15A-37: USAF Calibration and Measurement Summary for the F/TF15 Eagle Aircraft.

2.17. T.O. 1C-17A-37: USAF Calibration and Measurement Summary for the C-17 Aircraft.

3. Terms Explained. The more common terms associated with metrology and calibration program are defined in Section I of Air Force Technical Order (T.O.) 00-20-14. Many other terms/abbreviations used in reference to TMDE can be found in Section III of T.O. 33K-1-100-1. The following terms are also used by scheduling section personnel when they interact with customers.

3.1. Emergency Maintenance: Scheduled or unscheduled work on mission critical TMDE whose absence prevents the owning work center (OWC) from accomplishing its mission.

3.2. Initial Calibration: First calibration of an item to be added to the Master ID listing after receipt from supply stock or other sources.

3.3. Owning Work Center (OWC): The shop or office having basic custodial/organizational responsibility for the TMDE.

3.4. PMEL Automated Management Subsystem (PAMS): A management information system used by PMEL to track TMDE maintenance and calibration.

3.5. PAMS Equipment Schedule: A listing produced monthly reflecting all TMDE due calibration during the scheduled period.

3.6. Priority Maintenance: Scheduled or unscheduled work on mission critical TMDE whose absence **severely** limits the OWC's ability to support its mission.

3.7. Routine Maintenance: Scheduled or unscheduled TMDE placed in work sequentially in the order received.

3.8. Scheduled TMDE: Appearing on the current PAMS Equipment Schedule.

3.9. TMDE Coordinator: An individual assigned by the OWC to coordinate work requirements with PMEL. The coordinator obtains calibration support for the OWC and advises the work center supervisor on TMDE matters. Normally, all communications between the PMEL and the OWC will go through the PMEL coordinator.

3.10. Unscheduled TMDE: Requiring calibration or repair not appearing on the current PAMS Equipment Schedule.

4. TMDE Coordinators:

4.1. Duties: TMDE coordinators serve as vital links between the OWC and PMEL. They ask for calibration and repair support for their activity, keep their supervisors and commanders informed as to the status of their TMDE, give advice to TMDE owners and users, and ensure the OWC master inventory and monthly schedule are up to date. TMDE coordinators are also responsible for checking the accuracy of certification labels on their TMDE and annotate the date due calibration on their listings. All communications between OWC's and PMEL should be handled by the TMDE coordinator.

4.2. Appointment of TMDE Coordinators. Each OWC which needs support from PMEL will identify a primary and alternate TMDE coordinator to PMEL by letter (See **Attachment 1**). When a primary or alternate TMDE coordinator changes, send PMEL a new appointment letter.

4.3. Training: TMDE coordinators must get training from the PMEL scheduler or PMEL superintendent before assuming duties described in paragraph **4.1.** OWC's will call the PMEL Scheduling Section for the date and time of training. TMDE coordinators will bring their OWC TMDE file with them when they come to training.

5. OWC TMDE File. Each TMDE coordinator will set up a TMDE file which will include the following as a minimum. (Use Optional Form 21, Cross-Reference, if items are filed elsewhere).

5.1. Copy of 62 AWI 21-13.

5.2. Current copy of appointment letters for the primary and alternate TMDE coordinators.

5.3. Current corrected copy of the OWC Equipment Schedule.

5.4. Current corrected copy of the OWC Master ID listing. hand receipts for all TMDE currently in PMEL or elsewhere.

6. PMEL Normal Duty Hours. Normal operating hours are from 0700 to 1600, Monday through Friday. Mission essential work will be handled at any time. Contact the PMEL duty NCO through the 62 MXS production superintendent at 984-3571 or at cellular telephone number 279-2595.

6.1. TMDE coordinators will be told by the PMEL scheduler when to deliver and pick up their TMDE. Changes or exceptions to these days and times will be coordinated through the PMEL scheduler.

6.2. The scheduling section will be open for routine customer support between 0700 and 1600, Monday through Thursday. Normal delivery hours are 0700 through 1100, normal pick up hours are 0700 through 1600, Monday through Thursday. Priority TMDE will be processed at any time.

6.3. TMDE delivered to the PMEL will meet the requirements of T.O.s 00-20-14 and 33-1-27.

6.4. PMEL coordinators, in conjunction with OWC supervisors, will inform the PMEL as far in advance as possible of known mission changes, exercises, and inspections. This coordination will allow the PMEL to plan support requirements and services necessary to meet customers' needs.

7. Overdue TMDE:

7.1. Items which have gone overdue calibration will be brought to PMEL on a date and time set by the PMEL scheduler. The following sequence of events applies to overdue TMDE.

7.1.1. On-base and local area customers are required to schedule their TMDE within **5** days of due date or it will be treated as an unscheduled calibration. Organizations will be notified of overdue TMDE.

7.1.2. Off-base customers are required to schedule their TMDE within **10** days of due date or it will be treated as an unscheduled calibration. Organizations will be notified of overdue TMDE.

7.2. TMDE overdue by 30 days will result in a written notice being sent to the OWC from the PMEL.

7.3. TMDE overdue by 60 days will result in a written notice to the OWC's commander.

7.4. Any TMDE overdue by 90 days will not be accepted without written response from the OWC's commander.

7.5. At 120 days overdue, the item will be automatically deleted.

8. Unscheduled or Initial Calibration:

NOTE: To better serve our customers, we will attempt to maintain an average of 5 unscheduled calibrations per day or 20 per week. Each additional unscheduled will be reviewed for approval.

8.1. TMDE coordinators will:

8.1.1. Call the PMEL Scheduling Section between 0700 and 1100 for an input date for all unscheduled requirements and for all items requiring initial calibration.

8.1.2. An AFTO Form 350, Reparable Item Processing Tag, will accompany each unscheduled item delivered to the PMEL. Specific instructions for completing the AFTO Form 350 are contained in T.O. 00-20-2-10.

8.1.3. OWC’s requesting initial calibration on TMDE which is received through supply channels or from other sources will leave all issue documents or copies of the documents (DD Form 1348-1, DOD Single Line Item Release/Receipt Document; DD Form 1574, Serviceable Tag - Materiel), any warranty data, and (or) any documents certifying that the item has been calibrated, with the item when delivering it to PMEL. If, during the initial calibration, the item is found to be defective, PMEL will determine if the item should be repaired, if a quality Material Deficiency Report (MDR) should be submitted and (or) if the item should be returned for warranty repair. If appropriate, PMEL will provide the necessary information to the customer so the quality material deficiency report can be initiated.

8.1.3.1. This information will be returned with the equipment to the OWC. The OWC will be instructed to initiate an MDR. The equipment should then be processed through the quality assurance office that normally services that organization.

8.1.3.2. This information will also be sent to the quality assurance office that normally services your work center to inform them that you have been instructed to process the MDR through their office. Quality assurance will also be asked to provide the PMEL with an information copy of the final disposition instructions for the MDR exhibit.

8.1.3.3. PMEL will retain a file copy of the MDR data. Disposition will be made IAW AFR 4-20, Volume II. The PMEL is not required to maintain technical data or peculiar standards for unique systems, one-of-a-kind commercial equipment, or special purpose, limited-usage equipment. OWC’s are responsible for obtaining data and (or) peculiar standards for equip-

ment in these categories and provide it to the PMEL when requested. The PMEL scheduler will receipt for the data/equipment when received. If technical data is not received by the PMEL within three days (for on-base OWCs) or by the next scheduled delivery date (for off-base OWCs) the TMDE will be returned to the OWC without action. The OWC must then reschedule the item into the PMEL when the data is available.

9. Priority Repair or Calibration. Requests for priority maintenance will require a letter of justification (See Attachment 2) signed by the flight chief or the organization's maintenance superintendent. Approved priority items will be placed in work ahead of all items awaiting routine calibration or maintenance and worked during normal duty hours only. Work already in progress on routine items will not be stopped to accommodate the priority item.

9.1. TMDE that is overdue calibration will not be accepted for priority work unless accompanied by a letter from the maintenance officer and approved by the unit commander explaining why the item is overdue and why priority work is requested.

9.2. The PMEL manager will be the approving authority for all priority requests. Abusing the priority system disrupts normal activity and increases production backlog in the PMEL. Work centers should consider using alternate methods of accomplishing the required measurements or borrowing test equipment before requesting priority services. The PMEL can assist in determining alternate measurement methods and identifying sources from which equipment may be borrowed.

10. Emergency Repair or Calibration. Requests for emergency maintenance will require a letter of justification signed by the maintenance officer or the squadron commander. The PMEL manager will be the approving authority for all emergency requests. Approved emergency items will be placed in work immediately and worked until completed or until a work stoppage (i.e., awaiting parts) occurs. Overtime will be utilized as long as required to return the items to service. Approved emergency request items will be accompanied by a knowledgeable specialist from the OWC.

11. Oxygen Gauges and Test Equipment. OWC's possessing oxygen gauges or oxygen system components will comply with the provisions of T.O.s 37C11-1-1 and 15X-1-102 before delivering these items to the PMEL for calibration and repair. Items not in compliance with specified cleanliness requirements **will** be refused service by PMEL.

12. Torque Wrench and Pressure Gage Accuracy**. Generic part numbers for pressure gages (i.e. a 300psi gage would be listed as 300ZZ) and torque wrenches no longer exist. Air Force Metrology requires the PMEL to verify accuracy before certification. Even though the PMEL has an extensive listing, it is ultimately the OWC responsibility. The PMEL will return any gage or torque wrench it cannot determine its accuracy back to the customer. PMEL requests the OWC provide accuracy during initial calibration.**

13. Combustible Gas Detectors:

13.1. As per Note 23 in T.O. 33K-1-100-1, the customer is required to provide all consumables for PMEL support of the instrument including Standard Gas or Open Air as per commercial data. Since August 1994, the manufacturer must be traceable to NIST/International Standard and shall certify the Standard Gas, providing a Certificate of Traceability. This certificate must accompany the gas into the PMEL.

13.2. The shelf life for all cylinder reactive gases such as hydrogen cyanide and the sulfides, which react to the cylinder inner surfaces or valve fittings shall not exceed one year from the date of analysis and cannot exceed the manufactures' expiration. The shelf life for cylinder-nonreactive gases such as hydrogen, carbon dioxide and methane shall be generally limited to three years from the date of analysis. Gases older than three years can not be used without explicit approval from AFTMETCAL but can never exceed manufacturer's expiration date.

13.3. Consumable sensors, such as oxygen and combustible sensors, will be replaced as per the direction of the maintenance T.O. or commercial manual.

14. On-Site Calibrations:

14.1. The PMEL provides on-site calibration support to organizations and work centers using specialized transportable standards. The organizations being visited will be sufficiently notified in advance and are required to provide a suitable work area. It may also be necessary to provide personnel to assist in moving the standards from one location to another when it is not feasible to bring the equipment to the standards.

14.2. The calibrating team may have to work overtime in order to maintain the trip schedule. When this occurs, the supported organization must provide personnel to secure the building and work area when the calibrating team completes work for the day.

15. Deferred/Delayed Maintenance. The PMEL will inform the OWC of maintenance delays occurring because the equipment is awaiting technical data, is on hold for standards, or is awaiting parts (AWP). The notification may be by letter or telephone.

NOTE: When a piece of TMDE has been in awaiting parts status for more than 45 days, or the estimated delivery date of the parts does not reflect an acceptable release date, the OWC supervisor should consider "Not Repairable This Station" (NRTS) action and requisition a new or replacement item.

16. Determination of Calibration Responsibility. When an item of Air Force TMDE is not listed in T.O. 33K-1-100, the PMEL will prepare a Calibration Determination Letter which will be sent to the Air Force Metrology and Calibration Center (AFMETCAL) requesting that a determination of calibration responsibility be made. The OWC must provide technical data, if available, on a loan basis. This is necessary for the reviewing office to expedite the determination. The OWC will remain responsible for all maintenance of the item until a determination has officially been made. The OWC will be notified of the determination when it is received from AFMETCAL. Do not deliver the item to the PMEL until notified.

17. Master ID Listing. These are complete listings of all assigned and (or) supported TMDE. The listings are produced and distributed to all work centers by the PMEL. The OWC TMDE coordinator will check the list, make corrections as necessary, and send back one corrected copy to PMEL within 3 workdays of receipt.

18. Equipment Schedule by OWC. Each month, the PMEL scheduler will mail out the Equipment Schedule listings to all supported work centers. All work center TMDE coordinators will review the listings and correct any discrepancies by lining out the incorrect data and entering the correct information in red. Compare the frequency against the intervals listed in the appropriate technical data or those that are established IAW the current Host Tenant Support Agreement or Interservice Support Agreement, if appli-

cable. Pay particular attention to the ID number and the date due calibration (DDC). The DDC on the listing must match the date due calibration on the calibration label attached to the item. After the review is complete, retain one copy of the corrected listing until receipt of the next one. Return a copy that has been annotated with the changes to the PMEL schedulers and (or) any other supporting work center scheduler.

19. Deficiency/Errors. OWCs will bring any errors/deficiencies to the attention of the PMEL Lab Chief immediately. If a problem cannot be solved through coordination with the PMEL Lab Chief, bring it to the attention of the PMEL Superintendent or the Branch Manager.

20. Document Requirements. Laboratory management will ensure all documentation requirements are complied with to include signing off operational/calibration checks pertinent to the maintenance/calibration process within the authority of T.O. 00-20-14 and 33K-1-100-1.

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Attachment 1

TMDE COORDINATOR APPOINTMENT LETTER FORMAT

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Attachment 2

PRIORITY REQUEST LETTER FORMAT

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